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VOL. 8 No. 13

MARCH 28, 1958

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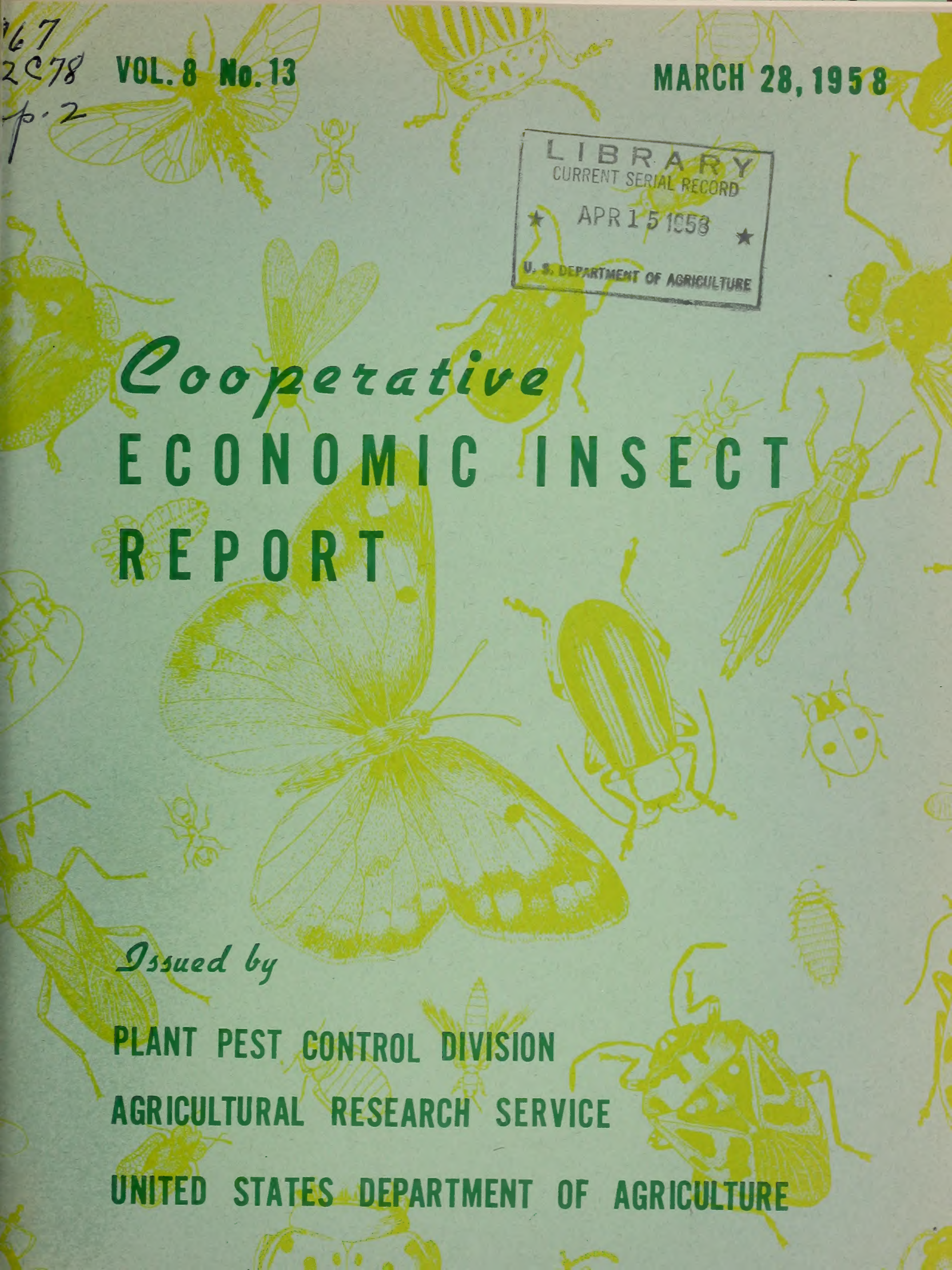

Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

PLANT PEST SURVEY SECTION

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Plant Pest Survey Section
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
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Volume 8 March 28, 1958 Number 13

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

EUROPEAN CORN BORER survival about the same as last year in South Dakota and near normal in southwest Illinois. (p. 233).

GREENBUG damaging small grains in northeast Texas. Light numbers in areas of Louisiana and New Mexico. (p. 233).

MORMON CRICKET nymphs in Pershing County, Nevada. (p. 233).

POTATO LEAFHOPPER SURVEY - Your participation with the research committee studying migration of this pest is urged again this year. Send first appearance records, abundance data and other observations to G. C. Decker, Illinois Natural History Survey, Urbana, Illinois.

First-brood nymphs of PEAR PSYLLA appearing earlier than usual in Jackson County, Oregon. New county record in California. (p. 234).

BOLL WEEVIL survival survey in Georgia shows lower number of weevils per acre than last year. (p. 235).

Indications that cold weather has reduced SCREW-WORM population in Florida. (p. 236).

MOSQUITOES causing considerable annoyance to cattle in lower Rio Grande Valley of Texas. (p. 236).

CORRECTIONS and ADDITIONAL NOTES. (p. 237).

SUMMARY OF INSECT CONDITIONS - 1957 - North Carolina (p. 240), Idaho (p. 246).

INSECTS not known to occur in the United States. (p. 253).

Distribution of SUGARCANE BEETLE. (p. 239).

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Reports in this issue are for the week ending March 21 unless otherwise designated.

WEATHER OF THE WEEK ENDING MARCH 24

With utter disdain for the advent of spring (March 20), "old man winter" continued to reign over nearly all areas east of the Rockies for the second straight week, as a ridge of high pressure extended from western Canada down through the mid-continent area. Temperatures for the week averaged 9° to 12° below normal in southern areas, but were slightly above normal in upper portions of the Great Lakes, New York and New England. Cold, cloudy weather and 3 to 6 days with precipitation kept soils too wet to work and prevented rapid growth of vegetation in the South where the season is 3 weeks late in many areas. Freezing occurred on 3 to 6 days in north and central portions of the Gulf States from Texas to Georgia, and scattered light to moderate frost was reported in northern Florida on the 21st and 22nd. The freezes caused slight loss of tender plants in Louisiana.

A wild storm meandering up the East Coast from the 19th through the 22nd ushered spring in there with gale to hurricane force winds and heavy rain and snow as high tides flooded coastal lowlands.

Heavy, wet snow blanketed an area extending from northern Virginia through New England. Snowfall during the storm ranged from 1 to 3 feet in much of this area. Mt. Airy, Md., reported 29 inches; Westminster , Md., 27; Trenton, N. J., 17.7 inches, the greatest amount there for a single storm since February 12-13, 1899 when 22 inches fell; and Norfolk, Conn., 18 inches. Up to 40 inches were reported from interior sections of Pennsylvania, and up to 35 inches in northwestern New Jersey. This snowstorm was described as the worst in 40 years in Pennsylvania, and it was the worst of the season in many other sections.

The storm halted air and surface traffic between large cities for various periods of time, downed trees, buildings, power and telephone lines, and caused about 40 deaths. Damages based on preliminary estimates amounted to $1.5 million in New Jersey and $3.5 million in Pennsylvania. Losses were also heavy in New England, Maryland, and New York State.

The week's weather was more nearly mormal in the Far West where temperatures averaged a few degrees above normal except slightly below in interior California. Precipitation was again heavy in California but mostly light to moderate elsewhere.

Despite general light to moderate snowfall in the Great Plains both at the beginning and end of the week and an unusually heavy snowstorm in the Northeast, the cover east of the Rockies decreased. At end of the week only relatively small areas of the northern Plains were still covered, and further east the cover was limited to the Appalachians, much of New York and New England, and extreme upper portions of the Mississippi Valley and Great Lakes. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

EUROPEAN CORN BORER (*Pyrausta nubilalis*) - SOUTH DAKOTA - Field survival averages 82 percent in 6 counties in northeast and east central regions. Survival is approximately the same as for 1957. (Hantsbarger). KANSAS - Counts made in several corn fields in the Kansas River Valley, southern Pottawatomie and northern Wabaunsee Counties showed a winter survival of 84-96 percent. None of the larvae have pupated. (Matthew). ILLINOIS - Survival in the west southwest apparently normal, with 63 percent of larvae found alive. (Ill. Ins. Rept.).

GREENBUG (*Toxoptera graminum*) - NEW MEXICO - Very light infestation on barley at Virden, Hidalgo County. (N. Mex. Coop. Rept.). LOUISIANA - Present on wheat and oats in low numbers in Acadia, Vermilion and St. Landry Parishes. (Newsom, Spink). TEXAS - Damaging small grains in Hunt, Rockwall, Delta, Kaufman and Van Zandt Counties. (Hawkins). Other spotted infestations reported in volunteer fields of small grain in northern areas. (Chada). KANSAS - None found in wheat and barley fields surveyed in southern Pottawatomie, northern Wabaunsee and Riley Counties. (Matthew). OKLAHOMA - None noted in small grains in Beckham County. (Coppock, Hudson).

MORMON CRICKET (*Anabrus simplex*) - NEVADA - First-instar nymphs present in Seven Troughs area of Pershing County. (McCoy, March 14). Present control includes 54,000 acres in 5 northern counties: Elko County 1,000 acres, Eureka County 5,000 acres, Humboldt County 4,000 acres, Lander County 16,000 acres and Pershing County 28,000 acres. (Del Curto).

ENGLISH GRAIN APHID (*Macrosiphum granarium*) - TEXAS - Infestations light in small grain throughout north central area. (Chada).

Grape Colaspis Survey, Arkansas: One of the causes of loss of stands of seedling rice in fields following lespedeza in 1957 was determined to be *Colaspis* sp. Surveys conducted during the weeks of March 3 and March 10 for the pest showed an average of 0.2-5.1 larvae per square foot in Lonoke County, 13.2-24.3 in Arkansas County, 0-18.7 in Green County, 24.5 in Craighead County, 22-28.3 in Poinsett County and 0.5 at 1 stop in Cross County. (Boyer, et al.).

JAPANESE BEETLE (*Popillia japonica*) - VIRGINIA - Grub populations ranged 4-17 per square foot in Danville, Pittsylvania County. (Rowell et al.).

RICE STINK BUG (*Oebalus pugnax*) - LOUISIANA - Overwintering in bullgrass. Counts ranged 0-10 per clump and averaged 1.4 bugs per clump. (Newsom, Spink).

SLUGS - OREGON - Injury to legumes and fall-sown grain has decreased in Polk and Yamhill Counties, probably as a result of recent cool weather. (Dickason).

WINTER GRAIN MITE (*Penthaleus major*) - TEXAS - Reported in small numbers in various small grain fields in northern counties. (Chada).

ALFALFA WEEVIL (*Hypera postica*) - NORTH CAROLINA - Most larvae in early instars in Alamance and Durham Counties. (Jones, Farrier). DELAWARE - First and second-instar larvae continue to feed in alfalfa buds in all areas examined . (MacCreary, Conrad).

LESSER CLOVER LEAF WEEVIL (*Hypera nigrirostris*) - ILLINOIS - Adult counts average 0.6 per square foot in the west southwest. (Ill. Ins. Rept.).

CLOVER LEAF WEEVIL (*Hypera punctata*) - KANSAS - Small larvae found in all alfalfa fields surveyed in 3 northeast counties. Counts averaged 2 larvae per crown. (Matthew). ILLINOIS - Averages 2.8 per square foot in the east section and 1.7 in the west southwest. (Ill. Ins. Rept.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - NEW MEXICO - Light infestations in alfalfa fields in Dona Ana and Luna Counties. (N. Mex. Coop. Rept.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEW MEXICO - One heavy infestation on seedling alfalfa near Las Cruces, Dona Ana County. Otherwise infestations generally light. Several alates collected near Animas, Hidalgo County. (N. Mex. Coop. Rept.).

PEA LEAF WEEVIL (Sitona lineata) - OREGON - Damage to vetch and field peas now considerably less evident in Polk and Yamhill Counties than February 9. (Dickason).

LYGUS BUGS (Lygus spp.) - NEW MEXICO - Numerous in alfalfa fields near Derry and Arrey, Sierra County. (N. Mex. Coop. Rept.).

CLOVER LEAFHOPPER (Aceratagallia sanguinolenta) - ILLINOIS - Adults average 0.6 per square foot in the west southwest. (Ill. Ins. Rept.).

ARMY CUTWORM (Chorizagrotis auxiliaris) - KANSAS - None found in 3 northeastern counties. (Matthew). OKLAHOMA - Populations in small grains averaged less than 1 larva per square yard in Beckham County, with a range of 0.5-6.0. (Coppock, Hudson).

ALFALFA LOOPER (Autographa californica) - CALIFORNIA - Heavy on alfalfa in the Imperial Beach area of San Diego County. (Cal. Coop. Rept.).

PEA APHID (Macrosiphum pisi) - DELAWARE - Common on alfalfa in eastern Sussex County. (MacCreary, Conrad). ILLINOIS - Counts averaged 0.4 in the west southwest. (Ill. Ins. Rept.). NEW MEXICO - Light infestations in many fields in Sierra, Dona Ana, Luna and Hidalgo Counties. (N. Mex. Coop. Rept.).

FRUIT INSECTS

CODLING MOTH (Carpocaspa pomonella) - NEW MEXICO - Large numbers overwintering under bark of trees and in apple sheds in fruit-growing areas of the State. (N. Mex. Coop. Rept.).

APPLE APHID (Aphis pomi) - OREGON - Active and moderately abundant in an apple orchard in Benton County. (Jones, March 16).

APPLE MEALYBUG (Phenacoccus aceris) - OREGON - Very active on filberts at Mission Bottom. Winged males extremely abundant, much more numerous than wingless females. Mating observed but no oviposition noted. (Jones, March 19).

BLACK CHERRY APHID (Myzus cerasi) - OREGON - Emerged in Marion, Polk and Benton Counties the week of March 16. (Stephenson, Capizzi).

CLOVER MITE (Bryobia praetiosa complex) - NEW MEXICO - Eggs numerous in several orchards along Mimbres River, Grant County. (N. Mex. Coop. Rept.).

ITALIAN PEAR SCALE (Epidiaspis piricola) - CALIFORNIA - Medium infestations on pear in Danville area of Contra Costa County. (Cal. Coop. Rept.).

PEAR PSYLLA (Psylla pyricola) - OREGON - First-brood nymphs found considerably earlier than in past years in Jackson County. (Gentner, March 12). CALIFORNIA - Eggs on pear at Loomis, Placer County, reported as a first county record. (Cal. Coop. Rept.).

PEACH TWIG BORER (*Anarsia lineatella*) - CALIFORNIA - Heavy infestations in peach trees in Tranquillity area of Fresno County. (Cal. Coop. Rept.).

PECAN NUT CASEBEARER (*Acrobasis caryae*) - TEXAS - Overwintering larvae emerging from hibernacula and feeding on young buds in the College Station of Brazos County. (Garner, Turney). FLORIDA - Larvae averaged few per branch tip on 25 inspected. Inspection for overwintering hibernacula showed 16 percent of branch tips infested and 75 percent of larvae in the hibernacula alive. (Phillips).

A PLUM APHID (*Anuraphis helichrysi*) - NEVADA - Abundant on plums in Reno-Sparks area of Washoe County. (Ting).

TRUCK CROP INSECTS

VARIEGATED CUTWORM (*Peridroma margaritosa*) - CALIFORNIA - Medium infestation on spinach in the Soledad area, Monterey County. (Cal. Coop. Rept.).

A CUTWORM (*Diarsia rosaria*) - CALIFORNIA - Heavy larval populations on strawberry plantings in the Watsonville area of Santa Cruz County. (Cal. Coop. Rept.).

DIAMONDBACK MOTH (*Plutella maculipennis*) - CALIFORNIA - Light infestation on mustard in Woodland, Yolo County. (Cal. Coop. Rept.).

CABBAGE LOOPER (*Trichoplusia ni*) - FLORIDA - Larvae infesting approximately 40 acres of cabbage in the Immokalee area, Collier County. (Denmark).

ALFALFA LOOPER (*Autographa californica*) - CALIFORNIA - Medium infestation on spinach in Soledad area, Monterey County. (Cal. Coop. Rept.).

ONION THRIPS (*Thrips tabaci*) - NEW MEXICO - Beginning to build up in some onion fields in Dona Ana County. (N. Mex. Coop. Rept.).

A WHITEFLY(*Aleyrodes spiraeoides*) - WASHINGTON - Has been active during most of winter in Union Gap area, Yakima County, and adults were in flight on February 21. (Landis).

VEGETABLE WEEVIL (*Listroderes costirostris obliquus*) - CALIFORNIA - Heavy populations on weed reported from Lemon Grove area of San Diego County. (Cal. Coop. Rept.).

COTTON INSECTS

Boll Weevil Survival Counts in Georgia: Collections of surface woods trash March 3-10 showed 97 weevils per acre in the northwest, 1,307 in north central, 968 in the east central and 532 in the south, with an average of 731 live weevils per acre for the 4 areas. This compares with 1,036 weevils in 1957. Compared with the number of weevils found during the fall of 1957, the winter survival for the State is 34 percent. (Beckham, Morgan).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

A CYPRESS TIP MOTH (*Epinotia hopkinsana cupressi*) - CALIFORNIA - Medium infestation on cypress in Monterey, Monterey County. (Cal. Coop. Rept.).

HOLLY LEAF MINER (Phytomyza ilicis) - OREGON - Surveys disclosed no appreciable increase in area of infestation in northern Clackamas County. Existing infestations have generally increased in severity over 1957. (Larson, March 17).

MITES - OREGON - Rhizoglyphus sp. heavily infesting a planting of several thousand lily plants being forced for Easter in a greenhouse at Eugene, Lane County. (Bock, March 14).

ROSE APHID (Macrosiphum rosae) - NEW MEXICO - Light to moderate infestations on roses in Dona Ana, Luna, Hidalgo and Grant Counties. (N. Mex. Coop. Rept.).

SPIDER MITES - MARYLAND - Adults appearing on wild geranium at College Park, Prince Georges County. (Univ. Md.,Ent. Dept.). CALIFORNIA - Heavy populations of Eurytetranychus buxi reported on boxwood in Mill Valley, Marin County. This mite is not commonly taken in the State. (Cal. Coop. Rept.).

APHIDS - OKLAHOMA - Numerous on Easter lilies in a greenhouse in Tulsa, Tulsa County. (Coppock, Hudson, Stiles).

CUTWORMS - NEW MEXICO - Causing considerable damage to seedling and transplanted flowers at Las Cruces and Anthony, Dona Ana County. (N. Mex. Coop. Rept.).

INSECTS AFFECTING MAN AND ANIMALS

SCREW-WORM (Callitroga hominivorax) - FLORIDA - Reported from Hendry County. In the winter of 1956-57 approximately 400 head of new-born calves were treated for infestation, while in 1957-58 only 4 calves were treated, showing that cold weather had a marked effect on the screw-worm population. (Denmark).

SHEEP KED (Melophagus ovinus) - PENNSYLVANIA - Quite abundant on sheep in Greene County. (Udine, March 12).

CHICKEN MITE (Dermanyssus gallinae) - SOUTH DAKOTA - Infesting a home in Brookings County where a child was bitten. Source is believed to be pigeons which frequent the roof of the house. (Hantsbarger).

A CUTEREBRID - NEVADA - Larva removed from the femoral region of a cocker spaniel at Reno, Washoe County. (Bechtel).

LICE - NORTH CAROLINA - Moderate infestation in a herd of calves and a severe infestation in a herd of hogs in Wake County. (Batt). TEXAS - Feeding on cattle in Hall County. (Hooser). UTAH - Serious in some herds in Wasatch, Sevier, Juab, Kane and San Juan Counties. (Knowlton).

MOSQUITOES - TEXAS - Causing considerable annoyance to cattle in the lower Rio Grande Valley. (Fuller). UTAH - Larvae appearing in some areas in Weber County. (Knowlton). CALIFORNIA - Light trap catches generally low with Culiseta inornata the predominant species. (Cal. Coop. Rept.).

STORED-PRODUCT INSECTS

Stored-grain Pest Survey, Oklahoma: Inspection of 12 feed and seed establishments in southwestern part of the State showed RICE WEEVIL light in 1; LESSER GRAIN BORER severe in 1; RED FLOUR BEETLE severe in 1, heavy in 1, moderate in 1, occasional in 1; SAW-TOOTHED GRAIN BEETLE moderate in 1; CADELLE light in 1, occasional in 4; INDIAN-MEAL MOTH heavy in 1, light in 6, occasional in 1; DERMESTIDS moderate in 1, light in 5; KHAPRA BEETLE was negative. Various grains and seeds were included in the inspection. (Coppock, Hudson).

BENEFICIAL INSECTS

DAMSEL BUGS (*Nabis* spp.) - NEW MEXICO - Numerous in fields in Dona Ana, Luna, Hidalgo and Grant Counties. (N. Mex. Coop. Rept.).

A GREENBUG PARASITE (*Aphidius testaceipes*) - TEXAS - Quite common where greenbugs are numerous in northern counties. (Chada).

LACEWINGS (*Chrysopa* spp.) - NEW MEXICO - Numerous in fields in Dona Ana, Luna, Hidalgo and Grant Counties. (N. Mex. Coop. Rept.).

LADY BEETLES - NEW MEXICO - Adults and larvae of *Hippodamia parenthesis* numerous in a spotted alfalfa and pea aphid infested field near Animas, Hidalgo County. (N. Mex. Coop. Rept.). ILLINOIS - Adults average 0.4 per square foot in the west southwest. (Ill. Ins. Rept.).

MISCELLANEOUS INSECTS

IMPORTED FIRE ANT (*Solenopsis saevissima richteri*) - FLORIDA - Light to heavy infestations reported at 4 different locations in the Holt area, Okaloosa County. (Dickinson, March 7). No important extensions reported. (Bittner, March 14).

TERMITES - PENNSYLVANIA - Swarming about homes generally. (Pepper et al.).

RED HARVESTER ANT (*Pogonomyrmex barbatus*) - OKLAHOMA - Active in Greer County. (Coppock, Owens, March 5).

PAINTED-LADY (*Vanessa cardui*) - CALIFORNIA - Heavy flights still reported from several counties. Egg laying on wash on lines was nuisance to housewives in Riverside County. (Cal. Coop. Rept.).

OLD-HOUSE BORER (*Hylotrupes bajulus*) - PENNSYLVANIA - In beams of a house in Lycoming County. (Gesell).

CLOVER MITE (*Bryobia praetiosa* complex) - NEVADA - Additional movements to dwellings has increased number of complaints from homeowners. (Bechtel, et al.).

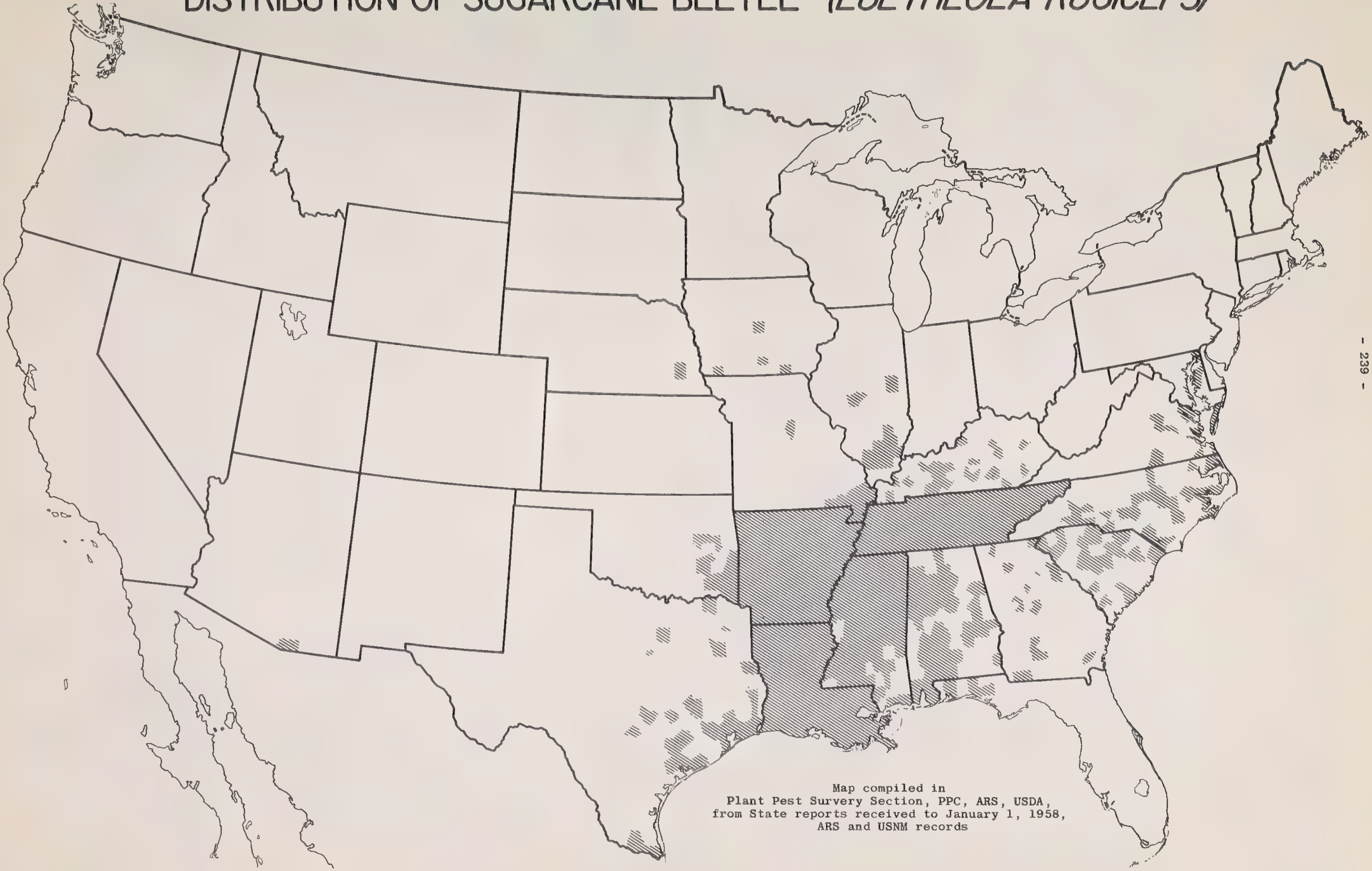
CORRECTIONS: CEIR 8(11): title page should read No. 11. Also "Reports in this issue are for the week ending March 7, 1958 unless otherwise designated."

ADDITIONAL NOTES - ALABAMA - GREENBUG counts averaged 15-20 per 10 sweeps in Escambia, Baldwin and Mobile Counties. CATTLE BITING LOUSE still causing damage to cattle in southern part of State.

LIGHT TRAP COLLECTIONS

	Hel. zea	Pseud. unip.	Proto. quin.	Laph. frug.	Agrot. yps.	Perid. marg.	Felt. subt.	Prod. ornith.
ARKANSAS								
Stuttgart 3/3-8		1			16			
LOUISIANA								
Franklin 3/9-18		1		1	1		3	
SOUTH CAROLINA (County)								
Charleston 3/17-23		15			3			2
TEXAS								
Brownsville 3/9-14	7	70	1	36	9	38	48	

DISTRIBUTION OF SUGARCANE BEETLE *(EUETHEOLA RUGICEPS)*



Map compiled in
Plant Pest Survery Section, PPC, ARS, USDA,
from State reports received to January 1, 1958,
ARS and USNM records

SUMMARY OF INSECT CONDITIONS - 1957

NORTH CAROLINA

Compiled by Maurice H. Farrier*

New Records of Economically Important Insects: Two SPIDER MITES, *Tetranychus magnoliae* on magnolia and *Eotetranychus clitus* on Formosa azaleas, were reported from the State for the first time. *Eotetranychus clitis* has been seen injuring azaleas in the State for many years but only recent taxonomic description makes possible its report. The IMPORTED FIRE ANT (*Solenopsis saevissima* v. *richteri*) was found at a site from which it was previously believed to have been eradicated in Brunswick County and at a site near where it was previously eradicated in Mecklenburg County.

Highlights: There was a notable absence of reported damage by CUTWORMS early in the season. The ARMYWORM clipped heads of small grain over a five-county area in the south central part of the State. Spread of the ALFALFA WEEVIL to the southern border and throughout the Piedmont occurred. The SPOTTED ALFALFA APHID did not cause economic damage except in one area in Wake County which suffered from extended drought. JAPANESE BEETLES, feeding on the silks, caused poor fertilization of corn in some areas. BILLBUGS extensively damaged corn in southeastern counties with the severely affected area extending inland as far as Elizabethtown. The MEADOW SPITTLEBUG was more abundant than usual early in the season in the western area. Soybeans suffered damage by the CORN EARWORM in northeastern counties, the MEXICAN BEAN BEETLE in the middle eastern counties and the VELVETBEAN CATERPILLAR in the southern Coastal Plain and southern Piedmont. Leaves of both domestic and wild grapes were severely skeletonized in the Coastal Plain and Piedmont by the GRAPE LEAF SKELETONIZER. Wax beans in the northern Coastal Plain were rejected by the canners in the early summer because of infestation by the CORN EARWORM. Drought conditions in mid- and late summer aggravated the problem of TWO-SPOTTED SPIDER MITE and TOBACCO THRIPS on peanuts in the northern Coastal Plain and later the VELVETBEAN CATERPILLAR attacked the pods in the stacks in the southern Coastal Plain. Late sweet corn was seriously damaged by the FALL ARMYWORM in southeastern counties. Flue-cured tobacco was injured more severely by the TOBACCO and TOMATO HORNWORMS than in the past three or four years. Foliage loss to insects, excluding the TOBACCO FLEA BEETLE, was estimated just under a million dollars. The state-wide average percentage of cotton squares infested by the BOLL WEEVIL ranged from 15.8 to 22.6 in treated fields in late July and early August, and untreated fields ranged from 29.8 percent to 58.9 percent in the same period. First BOLLWORMS of the season appeared in south central counties on August 1. Infestations of TWO-SPOTTED SPIDER MITE and *Tetranychus cinnabarinus* on cotton varied greatly and in general caused considerable damage. SCREW-WORMS were severe in the southern half of the State from the coast to the western border. Veterinarians reported treating over 450 cases in September. GNATS greatly reduced fieldworker efficiency in the Coastal Plain late in the season, and CATERPILLARS possessing urticating hairs were more abundant than in the four preceding years. The SALT-MARSH MOSQUITO continued its plague of coastal residents and tourists. GIANT HORNETS became more abundant as pests. Cured meat suffered the heaviest losses in years to the CHEESE SKIPPER.

Cereal and Forage Crops: ALFALFA WEEVIL (*Hypera postica*) was active noticeably in southern Noth Carolina by mid-February. The first cutting of about 21,000 acres would have been destroyed had it not been protected by insecticides.

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*Summarizing over 950 reports of more than 150 individuals representing over 24 Federal, State and private agencies who submitted specimens or data regarding 341 species of the 11,000 arthropods known to be in North Carolina.

The most severe injury would have occurred in the area east of a line through Davidson and Union Counties. A total of 42 additional counties was found infested for the first time. The heaviest incidence in years of the CLOVER LEAF WEEVIL (*Hypera punctata*) on alfalfa hindered early determinations because of the similarity of the larvae of the two species. It was estimated that the first cutting of about 21,000 acres of alfalfa were sprayed an average of about 1½ times. Infestation of 20 percent of the plants in fields of alfalfa by the MEADOW SPITTLEBUG (*Philaenus leucophthalmus*) was not uncommon in western North Carolina in late April and early May. The VELVETBEAN CATERPILLAR (*Anticarsia gemmatalis*) stripped plants in some alfalfa fields in Richmond County in late September. The only infestation of the SPOTTED ALFALFA APHID (*Therioaphis maculata*) of economic importance occurred in Wake County during a three-week drought, but rain halted its damage in that instance. Corn in the southeastern part of the State was seriously damaged by larvae of BILLBUGS (*Calendra* sp.). Losses necessitating replanting were common throughout the area which extended inland beyond previous areas of severe damage. A high percentage of the corn crop in Nash County was infested with the SOUTHERN CORNSTALK BORER (*Diatraea crambidoides*). Lower leaves of partially grown corn were mined by the CORN BLOTCH LEAF MINER (*Agromyza parvicornis*) in a thirty-mile-wide area in Currituck County. Adults of the JAPANSES BEETLE (*Popillia japonica*) caused incomplete kernel set by feeding on the silk tips. Oviposition rates of the CORN EARWORM (*Heliothis zea*) on sweet corn were lower this year than during any of the previous three years. In mid-June and again in mid-July the weekly oviposition count dropped to zero. Early season counts were about the same as in 1956 but late season counts did not approach those of 1956 or 1955. Late sweet corn was attacked severely by the FALL ARMYWORM (*Laphygma frugiperda*) with up to 30 percent of the stalks infested in Duplin, Stanly and Wake Counties. Damage by a NITIDULID (*Carpophilus sayi*) was more evident in sweet corn this year than in past years in Duplin and Iredell Counties. Soybeans were defoliated severely throughout the southern Coastal Plain by VELVETBEAN CATERPILLAR before the beans had set, thus decreasing or completely eliminating seed production. The MEXICAN BEAN BEETLE (*Epilachna varivestis*) was light to moderate on beans, and the CORN EARWORM caused moderate injury to soybeans in limited areas of the Coastal Plain and Piedmont. In Edgecombe County, GRASSHOPPERS (*Melanoplus* sp.) were the most important pest of soybeans in September. Heads of wheat and other small grains were clipped in limited areas of the southern Piedmont and northern Coastal Plain by the ARMYWORM (*Pseudaletia unipuncta*). Some fields suffered 60 percent losses but most were nearer 20 percent.

Peanuts in the northern Coastal Plain were injured severely by the TOBACCO THRIPS (*Frankliniella fusca*) in mid-June. In late July and August, usually less than 3 percent of the plants were injured by a ROUND-HEADED BORER (*Prionus* sp.) in some localities in the northern Coastal Plain. Later in the same area the CORN EARWORM was reported light to heavy and the TWO-SPOTTED SPIDER MITE (*Tetranychus telarius*) was general and moderate to heavy throughout August. Peanut plants in the southern Coastal Plain were stripped of the foliage in local areas by the VELVETBEAN CATERPILLAR in early September. Later the insect was found eating peanuts in the stacks. In late August the YELLOW-STRIPED ARMYWORM (*Prodenia ornithogalli*) and the FALL ARMYWORM (*Laphygma frugiperda*) caused local damage to peanuts in Martin and Pender Counties, respectively.

Fruit Insects: Blueberries in Beaufort County were infested with a WAX SCALE (*Ceroplastes* sp., near *ceriferus*) which has been on the increase in distribution and density in recent years. Larvae of the RASPBERRY CANE BORER (*Oberea bimaculata*) were taken from a forty-acre field in Pender County where tunneling and loss of plants had occurred. Grapes in many home plantings in Graven and Pitt Counties suffered 70 percent defoliation by the GRAPE LEAF SKELETONIZER (*Harrisina americana*).

Truck Crop Insects: Wax beans suffered 70 percent to 90 percent of the pods damaged by the CORN EARWORM (*Heliothis zea*) on over 250 acres in Chowan County in early June and resulted in the rejection of the last half of the crop by the canners. BEAN LEAF BEETLE (*Cerotoma trifurcata*) was more abundant than usual on beans in Granville and Jones Counties, causing moderate damage. MEXICAN BEAN BEETLE (*Epilachna varivestis*) was light to moderate over the Coastal Plain throughout the season. COWPEA CURCULIO (*Chalcodermus aeneus*) was injurious noticeably to green beans in Halifax and Wake Counties in mid-July. The TWO-SPOTTED SPIDER MITE (*Tetranychus telarius*) was injurious to green beans in Wake and Lenoir Counties in late July and early August. The first adults of the IMPORTED CABBAGEWORM (*Pieris rapae*) was seen in Duplin County during the week of April 12. The pest caused severe damage in local areas in Haywood County. CABBAGE LOOPER (*Trichoplusia ni*) was reported abundant and difficult to control on cabbage in Granville County in September. Collards suffered rather severe losses to CABBAGE APHID (*Brevicoryne brassicae*) in the northern Coastal Plain in February and in Bladen County in November. Pepper plants were injured in Columbus County by the COWPEA CURCULIO (*Chalcodermus aeneus*). Untreated Irish potatoes had lost 2/3 of the foliage to the COLORADO POTATO BEETLE (*Leptinotarsa decemlineata*) by May 17 in Duplin County.Fields of Irish potatoes past bloom in the Weeksville area of Pasquotank County averaged 4.5 to 5.5 larvae of EUROPEAN CORN BORER (*Pyrausta nubilalis*) per plant on May 30. Those fields in bloom on May 30 were not infested. Potatoes in adjacent Currituck and Camden Counties also were injured. LEAF-FOTTED BUG (*Leptoglossus phyllopus*) caused severe wilting of terminals of Irish potatoes, locally, in Duplin, Moore and Haywood Counties. Sweetpotatoes in Onslow County were severely damaged in some areas by WIREWORMS. Tomatoes suffered some damage early in the season in Granville and Wake Counties due to the TOMATO FRUITWORM (*Heliothis zea*).

Tobacco Insects: Tobacco was without apparent injury due to APHIDS during the season. They did not become noticeably abundant until mid-June or early July. CUTWORMS were unusually scarce on tobacco in Granville County during the early season. GRASSHOPPERS were general and very light in the Coastal Plain through late June. STINK BUGS caused some wilting of terminals in some fields in Columbus and Pender Counties but without distinct evidence of injury. JAPANESE BEETLE (*Popillia japonica*) severely defoliated limited areas of tobacco in Pitt County. Several acres also were injured by a SOD WEBWORM in Sampson County. The first eggs and larvae of the TOBACCO BUDWORM (*Heliothis virescens*) were seen on tobacco in Granville County on May 22. During the smae week infestations in the Coastal Plain and Piedmont ranged from none to 32 percent of the plants examined. During the last week in May the same area averaged 3.5 larvae per 25 tobacco plants. From early June through mid-July there was a continued general decrease in infestation. In early May, infestations of the TOBACCO FLEA BEETLE (*Epitrix hirtipennis*) were general on newly set tobacco in the Coastal Plain with local damage severe enough to cause delay in growth. Infestations were general and light to moderate in the Piedmont in mid- and late May except Forsyth County which had an average of 128 beetles per 40 plants. The first eggs of HORNWORMS (*Protoparce* spp.) were found in Granville County on May 20 with more southerly fields showing 1 percent to 20 percent of the plants infested during the same week but infestations in the Oxford area never approached those in more southern areas of the State. The following averages are indicative of the infestations during the two weeks at the peak of the second brood. Note that on July 5, as one proceeds northward (down the table), there is a progressive decrease in the number of eggs oviposited indicating the presence of an oncoming northward-moving wave. The crest of the wave would appear to reach Clayton during the week of July 12. Thus, if such a wave of oviposition is, in fact, found to exist, its movement from the southern to the northern border occurs in two to three weeks.

Average Number of Eggs of the Second Brood of Hornworms per 50 Tobacco Plants in Five Areas of North Carolina - July 1957.*

Location	Week ending	Eggs
Cerro Gordo	5 July	26.6
	12 July	0
Whiteville	5 July	4.3
	12 July	10.3
Greenville	5 July	2.4
	12 July	13.6
Clayton	5 July	0.7
	12 July	23.0
Oxford	5 July	0
	12 July	0

In July a survey of 50 fields of flue-cured tobacco in all belts except the border belt indicated that farmers were loosing $2.23 per acre due to BUDWORMS and HORNWORMS. This was a total loss of just under one million dollars which is very comparable to a similar survey conducted throughout the season in 23 fields in all belts except the old belt. This estimate is at considerable variance to that of the opinion of a group of agricultural workers who estimated the loss of tobacco to insects in 1957 at 6.2 percent of the crop or about 30 million dollars. WIREWORMS (Conoderus vespertinus and C. lividus) injured newly set tobacco plants causing replanting in numerous fields in the Coastal Plain. Infestations were as high as 75 percent in Robeson County, 35 percent in Wilson County, 40 percent in Wake County and 98 percent in Jones County but the average was much lower. The VEGETABLE WEEVIL (Listroderes costirostris obliquus) and WHITE-FRINGED BEETLES (Graphognathus spp.) injured tobacco plants in limited localities. Burley tobacco suffered little damage by insects except very light damage by the TOBACCO BUDWORM (Heliothis virescens).

Cotton Insects: Infestations by the BOLL WEEVIL (Anthonomus grandis) throughout the State are summarized in the following table:

Summary of Average Percent of Square Infestation by the Boll Weevil in North Carolina as Surveyed by County Agents

	Treated with insecticides		Not treated with insecticides	
Date	No. of farms	Average % of squares infested	No. of farms	Average % of squares infested
21 June	32	24.8	31	24.8
28 June	71	19.3	50	35.2
5 July	93	16.9	38	32.5
12 July	122	15.8	49	29.8
19 July	142	12.1	34	41.5
26 July	140	18.6	35	43.8
2 August	131	12.6	21	58.9
9 August	55	22.6	4	39.3

Last-instar larvae of the TOBACCO BUDWORM (Heliothis virescens) were first noticed in bolls on August 1 in Scotland County. The COTTON APHID (Aphis gossypii) came to attention in late July and early August only in localized areas. Adults of the COTTON LEAFWORM (Alabama argillacea) were caught first in the light traps in early September. By mid-September larval damage began appearing in middle and northern Coastal Plain but was too late to cause reduction in yields. In late July and early August general widespread and moderate to severe damage by SPIDER MITES (*Tetranychus telarius* and *T. cinnabarinus*) became evident throughout the State.

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*Original data collected by F. E. Guthrie, R. L. Baron, and M. H. Farrier.

Forest, Shade and Ornamental Insects: First adult emergence during the season of the JAPANSES BEETLE was on May 20 in New Hanover County. Adults were more abundant than in past years, especially in Duplin and Henderson Counties. Nymphs of Brood XIV of the PERIODICAL CICADA (*Magicicada septendecim*) first emerged in Buncombe County, April 19. Infestations were not observed at lower altitudes of some of the western counties, but damage to nursery, fruit and forest trees in most counties was serious locally with as many as 5 to 10 females attempting to deposit eggs in small branches. A SPIDER MITE (*Eotetranychus clitus*) was injurious particularly to the Formosa azalea which is the only variety it noticeably injures. Boxwoods in the Coastal Plain and Piedmont were damaged by a SPIDER MITE (*Eurytetranychus buxi*). Elms throughout the State were skeletonized, in some cases severely, by the ELM LEAF BEETLE (*Galerucella xanthomelaena*). An infestation of American holly by a HOLLY LEAF MINER (*Phytomyza* species) destroyed 50 percent of the leaf area of an ornamental planting in Forsyth County. BAGWORMS (*Thyridopteryx ephemeraeformis*) locally defoliated junipers throughout the Piedmont. A BURROWING WEBWORM (*Acrolophus* sp.) and larvae of the GREEN JUNE BEETLE(*Cotinis nitida*) were principal pests in lawns throughout the State. The principal pest of the magnolia was the MAGNOLIA SCALE (*Neolecanium cornuparvum*). The MIMOSA WEBWORM (*Homadaula albizziae*) injured mimosa and some locust trees in the northern Piedmont. SOLITARY OAK LEAF MINER (*Cameraria hamadryadella*) was more severe than usual in 1957 in the Piedmont, and SPIDER MITES (*Oligonychus* sp.) caused discoloration of foliage in local areas throughout the Piedmont. NANTUCKET PINE MOTH (*Rhyacionia frustrana*) injured isolated plantings throughout the Coastal Plain. SOUTHERN PINE BEETLE (*Dendroctonus frontalis*) was a pest pest of pine, particularly in Buncombe and Cherokee Counties. WHITE-PINE APHID (*Cinara strobi*), WHITE-PINE SAWFLY (*Neodiprion pinetum*) and WHITE-PINE WEEVIL (*Pissodes strobi*) injured white pine in local areas.

Insects Affecting Man and Animals: First infestations of the SCREW-WORM (*Callitroga hominivorax*) came to the attention of a veterinarian in McDowell and Avery Counties on June 17. By mid-July it had become general in Avery, McDowell and Burke Counties and caused loss of a calf in Lincoln County. In late July reports of the SCREW-WORM were confirmed from the central and southeastern counties. Reports to the State Veterinarian in September exceeded 462 cases, mainly from counties in the southern half of the State. Infestations of the IMPORTED FIRE ANT (*Solenopsis saevissima* var. *richteri*) were found in November in Brunswick County and on December 16 in Mecklenburg County, both at or near sites of known previous infestations which were believed to have been eradicated. Again, eradication has been attempted. Surveys of the third site in Wake County, previously located and eradicated, have failed to reveal any infestation at this time. Principal pests of dogs were the BROWN DOG TICK (*Rhipicephalus sanguineus*) and SCREW-WORM. A much wider variety of insects and related pests directly affecting man was reported this year than in past years. SALT-MARSH MOSQUITOES (*Aedes sollicitans*) continued their plague of coastal residents and tourists. Some areas had biting counts running as high as 50 per minute. In mid-July very low populations of the SALT-MARSH MOSQUITO were present along the coast but in late August, with increasing rains, they were general along the coast and severe from Carteret County southward. They continued abundant in the latter areas through September. PUSS CATERPILLAR (*Megalopyge* sp., prob. *opercularis*) was unusually abundant throughout the Piedmont in late August as were larvae of a FLANNEL MOTH (*Norape cretata*) in Wilkes County. Larvae of both species caused "stings" to children and adults. Those of the PUSS CATERPILLAR, im some instances, required medical attention. The AMERICAN DOG TICK (*Dermacentor variabilis*) caused temporary paralysis of a Pender County girl by attaching to the back of her neck. DEER FLIES were abuncant in the swamps around Currituck Sound in early May and in some areas of Davie and Carteret Counties in early July. During July and August large numbers of the COMMON MALARIA MOSQUITO (*Anopheles quadrimaculatus*) were present in the Kerr Lake area. The SOUTHEASTERN SCORPION (*Vejovis carolinus*) was active in Polk County during July. GNATS were a severe problem in September in the Coastal Plain in that they caused loss of efficiency of field workers by flying around their faces.

Household Pests: Residents of New Hanover County were pestered with a LYGAEID BUG (*Ischnodemus falicus*) swarming about houses in early November. The BROWN DOG TICK (*Rhipicephalus sanguineus*) was a pest in homes throughout the State, and in all cases there was a history of having a dog in the house. BROWN SPIDER BEETLE (*Ptinus hirtellus*) was a pest in some homes in the Coastal Plain in April. CIGARETTE BEETLE (*Lasioderma serricorne*) invaded business offices and homes in large numbers in one locality in Guilford County in September. The GIANT HORNET (*Vespa crabro germana*) became more abundant this year, especially in Wake County. At dusk they were attracted to proch and entrance lights. A commonly reported initial nesting site was an unoccupied bird house on the premises. MILLIPEDES caused people to temporarily abandon homes in part of the city of Concord in June. Adults of the SOUTHERN PINE SAWYER (*Monochamus titillator*) emerged from walls of homes in Edgecombe, Alexander, and Davie Counties. BLOW FLIES were particularly abundant during January and February in Duplin County. HOUSE FLIES (*Musca domestica*) were noted to be extremely abundant in some areas at certain times, usually where little attention was given to control.

Structural Pests: The OLD-HOUSE BORER (*Hylotrupes bajulus*) infested houses from the mountains to the coast, one house within two years of erection. Infestations by the SOUTHERN LYCTUS BEETLE (*Lyctus planicollis*) were limited mainly to the Piedmont in houses and furniture.

Stored-Product Pests: The heaviest damage by the CHEESE SKIPPER (*Piophilia casei*) in years was seen in cured meat in the State. Grain products suffered losses to the SAW-TOOTHED GRAIN BEETLE (*Oryzaephilus surinamensis*), the CONFUSED FLOUR BEETLE (*Tribolium confusum*) and the RED FLOUR BEETLE (*T. castaneum*) *castaneum*). Improperly stored Irish potatoes in the Coastal Plain were attacked by the POTATO TUBERWORM (*Gnorimoschema operculella*) from May through August. Some of the lots infested contained over 150 bushels.

Beneficial Insects: HONEY BEES (*Apis mellifera*) had favorable weather conditions for early spring brood-rearing. Swarming, usually confined to early May, continued on through most of June. A common parasite of white grubs, a SCOLIID (*Scolia dubia*) was seen in Alamance and Yancey Counties in August. Larvae of FLOWER FLIES were attacking actively aphids on collards in Bladen County in November.

Miscellaneous Pests: Requests for aid in control of the EARTHWORM MITE (*Fuscuropoda agitans*) continued to increase this year. Reports of infestations were limited to the Coastal Plain.

IDAHO

Compiled by A. R. Gittins

Highlights: ALFALFA WEEVIL was general throughout alfalfa areas of southern Idaho with total damage much below 1956. Many species of APHIDS were unusually abundant due primarily to favorable spring weather conditions for aphid increase. PEA APHID, ENGLISH GRAIN APHID, APPLE APHID and ROSY APPLE APHID were among the most abundant species. BEET LEAFHOPPER was more abundant than during 1956 with considerable increase in the incidence of curly-top on beans. CHERRY FRUIT FLY populations increased in recently infested southern areas and extensions of known infested areas were recorded. CLOVER SEED WEEVIL surveys during 1957 indicate distribution over most of the state. GARDEN SYMPHYLID problems increased on a variety of crops with four new county records. LARCH CASEBEARER infested over 15,000 acres in St. Maries area. First recorded occurrence in western forests. MEADOW SPITTLEBUG is now apparently well established in northern areas. ONION MAGGOT continued in unusually high populations in Boise Valley. SITONA WEEVILS were common almost statewide in legumes in southern areas. SPOTTED ALFALFA APHID was not recorded from Idaho during 1957. A STORED GRAIN MOTH (*Haplotinea ditella*) was found in grain mill at Arimo. First record of occurrence in United States.

Cereal and Forage Insects: Overwintered ALFALFA WEEVIL (*Hypera postica*) adults became active throughout the southwest during late March. Damage was generally minor to first-crop alfalfa. A few fields in the south central area showed 20-50 percent foliage loss. By June larvae were retarding second cutting in many southwestern and south central areas. Some alfalfa fields near Grangeville were heavily infested during mid-June with considerable foliage loss. Parasites became relatively abundant in the southwest by late June. Populations in eastern area were more moderate than in west or central areas. ALFALFA CATERPILLAR (*Colias philodice eurytheme*) adult populations were below 1956 numbers statewide but were common in some counties. Larval feeding was minor except one area near Twin Falls where injury was extensive to beans, potatoes and sugar beet fields adjacent to alfalfa. ALFALFA LOOPER (*Autographa californica*) caused marginal damage to bean fields in south central areas after migrating from recently cut alfalfa. Adults of a CLOVER ROOT CURCULIO (*Sitona flavescens*) averaged 1 per sweep in second cutting red clover near Nampa during july. This insect is becoming more common in forage crops in southwestern Idaho. BROWN WHEAT MITE (*Petrobia latens*) continued to cause slight damage to grain in southeastern areas. CLOVER APHID (*Anuraphis bakeri*) increased rapidly in early August in some red clover fields in Canyon and Twin Falls Counties where up to 95 percent of blossoms were infested. Some extremely heavy populations were noted on clover seed fields in northern Idaho during mid-July. A CLOVER BUD CAPTEPILLAR (*Grapholitha conversana*) destroyed up to 90 percent of blossoms in spots some alsike clover fields near Grangeville. CLOVER LEAF WEEVIL (*Hypera punctata*) was abundant in alfalfa in the Weiser area and caused some injury. CLOVER ROOT BORER (*Hylastinus obscurus*) populations reached 10-15 larvae and pupae per root in some southwestern fields. By September damaging populations were present on many second-year red clover fields in Canyon County. CLOVER ROOT CURCULIO (*Sitona hispidula*) adults were general in alfalfa and clovers throughout the State by early May. In northern and eastern areas feeding damage was minor. Southwestern adult populations varied from 4-16 per crown in early July. By mid-July red clover seed fields near Nampa and Roswell were infested with up to 40 larvae per square foot. CLOVER SEED CHALCID (*Bruchophagus gibbus*) was adults ranged 1-6 per sweep in most red clover seed fields of Canyon County during summer. Statewide surveys during July and August indicate CLOVER SEED WEEVIL (*Miccotrogus picirostris*) is now distributed throughout most of the state. Populations were abundant on clovers in northern counties with mating general and populations often exceeding 5 per sweep by June 30. There were few reports of CORN EARWORM (*Heliothis zea*) with negligible larval feeding damage during 1957. Over-all CRICKET populations averaged less than 1 per square yard in surveys during late April. Populations of *Steiroxys pallidipalpus* were noted over wide areas of Ada, Gem and Payette Counties with occasional counts of 10 per square yard. In late spring and early summer infestations of Mormon crickets developed on range areas of Payette and Gem Counties. High populations occurred in southeast Adams, western Valley, northeast Gem, central Custer and small localized areas in Fremont, Bonneville, Caribou, Payette and Washington Counties. Extended warm, dry, fall weather allowed crickets to lay near maximum numbers of eggs. ENGLISH GRAIN APHID (*Macrosiphum granarium*) was on grain in northern areas by the second week in July. Infestations were general and heavy. In the Grangeville area 80 percent of the heads were infested averaging 5-50 aphids per head. Heavy infestations were also reported on 4,000 acres of grain in Kootenai River bottom area. By July 19 spring grains in northern counties averaged 8 per head with 6.4 percent parasitism. By August 2 parasitism and predation had reduced aphid numbers below economic levels. Yield losses were low. GRASSHOPPER activity was considerably above that of 1956. Fall surveys indicate that approximately 450,000 acres of crop and rangelands will require treatment during 1958. Statewide approximately 90 percent of each economically important infestation was composed of *Melanoplus bilituratus* with local scattered infestations of *M. bivittatus*, *Oedaleonotus enigma*, *Asemoplus montanus*, *Camnula pellucida*, *M. foedus*, *M. packardii* and *M. femur-rubrum*. LESSER CLOVER LEAF WEEVIL (*Hypera nigrirostis*) larvae were found in 68 percent of red clover heads near Middleton with 63 percent parasitism June 7 and in 28 percent near Nampa with 8 percent parasitism. Populations were abundant on some white clover in the Mountain Home area with damage to developing heads. By late June extremely heavy populations of newly emerged adults were in red clover in Washington County.

LINED STALK BORER (*Oligia fractilinea*) was feeding on stems of *Agropyron subsecundum* at Aberdeen with some reduction in seed yield noted. LYGUS BUGS were light on alfalfa and clover in south central and eastern Idaho, never averaging more than 2 per sweep as late as June. Nymphal populations of 10 per sweep were found on white clover in Nez Perce County by mid-June. Populations remained relatively low in most southeastern and south central areas but became numerous by early September in untreated alfalfa. In most cases *Lygus hesperus* was considerably more abundant than *L. elisus* or *L. desertus*. MEADOW SPITTLEBUG (*Philaenus leucophthalmus*) and other spittlebug species were common and occasionally abundant particularly on alfalfa and red clover in northern areas. Surveys indicate that overall spittlebug populations are increasing in northern counties. A PYRALID MOTH (*Parargyractis kearfottalis*) was found in exceedingly large numbers in the adult stage in legume fields in Owyhee and Canyon Counties. This is the first time this moth has been found in such numbers in Idaho and the reasons for the superabundance are unknown. PEA APHID (*Macrosiphum pisi*) infestations were general on alfalfa in southern areas by mid-May and numerous severe infestations developed by mid-June. Populations in southeastern and south central areas were generally lower than in the southwest. RED-BACKED CUTWORM (*Euxoa ochrogaster*) larvae numbered 4-6 per square foot in scattered spots throughout clover fields in northern Valley County but were lighter than in 1956. Intermittent but extensive surveys failed to determine the presence of SPOTTED ALFALFA APHID (*Therioaphis maculata*) in Idaho. SWEETCLOVER WEEVIL (*Sitona cylindricollis*) caused considerable damage to sweetclover stands in in some areas, particulaly southern Idaho. A PLANT BUG (*Irbisia* sp.) damaged wheat grasses locally and injured wheat fields in Payette area during late June. TWO-SPOTTED SPIDER MITE (*Tetranychus telarius*) was often abundant causing moderate to heavy damage to legumes and corn throughout southern areas with most severe infestations in the Boise Valley and the Idaho Falls areas confined to red clover or alfalfa. SWEETCLOVER APHID (*Myzocallidium riehmi*) was present on most sweetclovers thoughout southern Idaho but of little or no economic importance. WIREWORMS AND FALSE WIREWORMS continued to cause some losses to dryland crop areas throughout the State. Much irrigated land, however, has been treated for wireworm control and these insects are becoming of less concern.

Fruit Insects: APPLE APHID (*Aphis pomi*) populations increased rapidly in southern areas after mid-May and by late June severe infestations were found throughout southwestern counties and at Idaho Falls. Considerable injury to new growth resulted where control measures were omitted in southwestern and southeastern areas. BLACK CHERRY APHID (*Myzus cerasi*) was above normal with moderate to severe infestations on cherries in some areas. BLACK VINE WEEVIL (*Brachyrhinus sulcatus*) caused moderate to severe root injury to strawberry plantings in Nez Perce County during June. CODLING MOTH (*Carpocapsa pomonella*) infestations were generally below 5 percent in properly sprayed commercial orchards but often reached 100 percent where control measures were neglected. CURRANT FRUIT FLY (*Epochra canadensis*) infested a planting of gooseberries in Roswell during early June with approximately 30 percent yield loss. EUROPEAN RED MITE (*Panonychus ulmi*) was common throughout fruit areas of state with high populations general on apples and in prune orchards in southwestern counties. High populations in commercial orchards probably resulted from improper timing of control measures. EYE-SPOTTED BUD MOTH (*Spilonota ocellana*) infestations were severe in some orchards during mid-May. GREEN PEACH APHID (*Myzus persieae*) populations were generally above 1956 being common and occasionally abundant in fruit growing areas of southeastern and eastern Idaho. A LEAF TIER was common on various species of *Prunus* in all parts of southeastern Idaho during June; occasional severe damage on commercial plums. MEALY PLUM APHID (*Hyalopterus arundinis*) built up rapidly in late spring in southwestern areas on plums and continued abundant in orchards particularly around Nampa following control measures. PEACH TWIG BORER (*Anarsia lineatella*) was minor during 1957 but some damage was evident near Emmett. PEAR LEAF BLISTER MITE (*Eriophyes pyri*) was common in orchards in southwestern areas and scattered infestations were noted in other areas. Considerable injury occurred on pears and pear foliage in the Lake Lowell area. PEAR PSYLLA (*Psylla pyricola*) adults were general in pear orchards in the Boise Valley by April 8 and fourth and fifth-instar nymphs were noted by mid-May. In well-sprayed Canyon County orchards during July no nymphal populations were seen but some migrant adult forms were observed.

CLOVER MITE (*Bryobia praetiosa*) was general during 1957 with few severe infestations recorded. FRUIT TREE LEAF ROLLER (*Archips argyrospila*) caused considerable rolling of leaves and defoliation on plum in Bonner County. PEAR-SLUG (*Caliroa cerasi*) was common on pears and cherries in southeastern areas with serious damage in some cases, generally minor in western areas. ROSY APPLE APHID was exceedingly abundant in southwestern orchards. Even where control measures were utilized populations continued high partly as a result of population pressures. Early attacks were severe with many older leaves damaged prior to July. SAN JOSE SCALE, LECANIUM SCALE and EUROPEAN PEACH SCALE were present as scattered infestation throughout orchard areas of State but relatively unimportant except where controls neglected. STRAWBERRY APHID (*Pentatrichopus fragaefolii*) occurred in very low numbers two commercial untreated strawberry fields in Canyon County. STRAWBERRY LEAF ROLLER (*Ancylis comptana fragariae*) adults were common in western Idaho by early May with populations of 1-3 moths per plant in southwestern areas. By late June heavy infestations were observed in commercial strawberry fields in southwestern Idaho with pupation just commencing. TWO-SPOTTED SPIDER MITE (*Tetranychus telarius*) was common and often abundant on a wide variety of fruit crops occasioning considerable injury. Above normal populations continued partly due to poor timing and poor coverage of chemical sprays. WESTERN CHERRY FRUIT FLY (*Rhagoletis cingulata indifferens*) adults were first collected from stickyboards in Washington County in late May and Twin Falls area June 6. Infestations averaged 2-3 maggots per cherry in non-controlled trees. Surveys during 1957 indicated this insect is well established in Twin Falls and Washington Counties and has extended its range to Ada County.

Truck Crop Insects: POTATO APHID (Macrosiphum solanifolii) was the most prevalent aphid on potatoes but was generally low.

ASPARAGUS BEETLE (Crioceris asparagi) adults were often extremely abundant on asparagus patches in southwestern areas. One of the highest BEET LEAFHOPPER (Circulifer tenellus) populations since 1943 entered the fall of 1956 and winter of 1956 and winter of 1956-57 under favorable conditions. During March and April host plants were generally abundant and widely distributed. Overwintering adults left range areas and entered cultivated crops by late April. Representative breeding areas averaged 78 adults per 100 square feet of weed host as compared with 25 in 1956 and an average of 31 for the past 15 years. Egg laying began in late March and hatching in early May. Cool damp spring weather caused a higher than average mortality but also extended the life of desert spring host plants which aided normal development and maturation of spring generation leafhoppers. Movement of leafhoppers in cultivated areas was also extended over a longer than usual period. The insects were first noted in sugar beet fields near Buhl on May 29. By July 31 adults had moved into contract bean fields west of Jerome and Twin Falls causing an estimated damage exceeding $500,000 by transmitting curly-top virus disease to beans, whole fields being plowed up during this period. BEET WEBWORM (Loxostege sticticalis) spring generation larvae appeared in young sugar beet plantings in American Falls area in Late June. Second generation populations failed to develop on sugar beets and damage during 1957 was negligible. CABBAGE APHID (Brevicorvne brassicae) became abundant during June on cabbages in the Parma area. By late July numbers were abundant on 5,000 acres of rape in Lewis County but damage was minor. CABBAGE LOOPER (Trichoplusia ni) damaged numerous fields of lettuce in Canyon County during late May and early June when larval populations, mostly second instar, ranged 0-5 per plant. CABBAGE SEEDPOD WEEVIL (Ceutorhynchus assimilis) populations reached 5 adults per sweep in turnip seed field near Fruitland and on rape seed fields in Nez Perce County during May. Damage was light to moderate.

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) infestation was general with highest numbers in northern Bingham, Bonneville and Fremont Counties and appeared better established in northern Butte and Custer Counties than previously. Severe infestation occurred on potatoes near Burley with exceptionally heavy egg laying. Spotted infestations continued in northern Bingham, Fremont and Bonneville Counties as late as mid-August and third control treatments were required. GARDEN SYMPHYLID (Scutigerella immaculata) increased in importance rapidly during 1957. New county records of damage for 1957 on truck crops were from Canyon, Clearwater, Nez Perce and Payette Counties. A LEAFHOPPER (Empoasca filamenta) gradually built up through the summer with highest numbers of 60-70 per sweep in September on potatoes. Some severe foliage discoloration occurred in many potato fields eastern area. LESSER BULB FLY (Eumerus tuberculatus) maggots appeared in commercial onion bulbs in Canyon County by August 1. Prior to this most injury had been confined to bulbs of seed onions. A LETTUCE APHID (Macrosiphum barri) was below average abundance. ONE-SPOT STINK BUG (Euschistus variolarius) was extremely abundant in home gardens at Lenore and Peck. ONION MAGGOT (Hylemya antiqua) adults became abundant in Canyon County onion growing areas during early april. Early maggot injury wiped out 200-300 acres of seedling onions. Early damage, however, was lighter than during 1956 and the degree of late damage was not as high as anticipated. Many growers carried on fair control programs and reduced populations by mid-season. Seed production was cut by 50 percent in some isolated cases with a probable over-all seed production loss of 10 percent. Commercial bulb production was 9,200,000 pounds less than 1956 with about 4 percent more acres. About 500 acres were not harvested mainly due to maggot injury. ONION THRIPS (Thrips tabaci) populations were generally low on seed and commercial onion in southwestern areas. In south central areas some severe infestations developed on onions and beans. PEA APHID (Macrosiphum pisi) built up rapidly in pea and lentil fields from Grangeville north to Benewah County and by mid-June exceptionally heavy populations up to 60 per tip were recorded. Most severe infestations were recorded from unsprayed fields in Latah and Nez Perce Counties. In numerous cases second and third insecticidal treatments were required. Heavy populations continued through July in some areas. By mid-August populations were on a general decline but losses exceeded $500,000 on over 75,000 acres. SPINACH LEAF MINER (*Pegomya hyoscyami*) was above normal for 1957 particularly in the Minidoka-Power-Bingham County area and caused injury to sugar beets throughout this area. SUGAR-BEET ROOT MAGGOT (*Tetanops myopaeformis*) damage was apparent in improperly treated fields near Idaho Falls during August. TOMATO HORNWORM (*Protoparce quinquemaculata*) was spotted with some light infestations. WESTERN BEAN CUTWORM (*Loxagrotis albicosta*) adults began emerging in late July at Rupert but failed to materialize as a pest of beans in southern areas and no commercial dusting or spraying was necessary for control. Appreciable flights of adult moths in Rupert were noted during the latter part of July and throughout most of August. WESTERN BLACK FLEA BEETLE (*Phyllotreta pusilla*) heavily damaged sugar beets and cabbage fields in Madison County and moderately injured sugar beets in the Boise Valley area. Adults were extremely abundant on broccoli in some areas. WESTERN POTATO FLEA BEETLE (*Epitrix subcrinita*) infestations were general but variable. Peak populations were reached by mid-August with counts up to 60 per sweep in potatoes. There was considerable larval feeding injury in potatoes for processing. Generally flea beetles more abundant than during past several years. EUROPEAN EARWIG (*Forficula auricularia*) caused about average annoyance and damage to vegetable crops. LYGUS BUGS (*Lygus* spp.) were abundant on various vegetable seed crops. TWO-SPOTTED SPIDER MITE (*Tetranychus telarius*) was common on numerous crops and occasionally caused severe injury, particularly on watermelons in the Parma area. Larvae of A LYCAENID BUTTERFLY (probably *Strymon melinus*) were found in large numbers causing considerable cluster drop on hops in Canyon County during early August with feeding confined to the clusters.

Forest, Shade Tree, and Ornamental Insects: APHIDS - Owing to spring weather conditions completely favorable to overall aphid buildup, aphid problems on forests, shade trees and ornamentals were greater than those experienced for a number of years. A total of 23 species caused concern to this group of plants in Idaho during 1957. *Periphyllus lyropictus* became extremely abundant on maples in the Moscow area by the end of May with extensive honeydew production. *Anuraphis viburnicola* was exceedingly abundant statewide with particularly heavy infestations in southwestern and south central areas. Numerous snowball bushes were drastically pruned to prevent complete loss. BARK BEETLES, particularly the DOUGLAS-FIR BEETLE (*Dendroctonus pseudotsugae*) continued abundant causing losses to forests which were difficult to evaluate. Scattered infestations of BLACK-HEADED BUDWORM (*Acleris variana*), involving several thousand acres of hemlock and grand fir forests in the Kaniksu National Forest, caused heavy defoliation during late summer. Heavy infestations of BLACK PINE LEAF SCALE (*Aspidiotus californicus*) were noted on ponderosa pine in a small area of the lower Potlatch River Valley with some tree mortality evident. A BILLBUG (*Calendra parvula*) caused considerable damage to lawns at Buhl during mid-summer. DOUGLAS-FIR TUSSOCK MOTH (*Hemerocampa pseudotsugata*) larval specimens were collected from Craters of the Moon area in late July, which has extended the known area of distribution in the State. ELM LEAF BEETLE (*Galerucella xanthomelaena*) caused almost complete skeletonization of many elms in southwestern area in spring. Second-generation larvae completely skeletonized great numbers of elm trees in Canyon, Payette and Washington Counties. COTTONY-MAPLE SCALE (*Pulvinaria innumerabilis*) was severe Gooding, Jerome, Twin Falls and some other areas. FOREST TENT CAPERPILLAR (*Malacosoma disstria*) caused considerable damage to green ash in southwestern Bingham County. Elsewhere infestations were spotted with only minor defoliation. CHRYSOMELIDS (*Altica* spp.) were extremely abundant on willow on the south fork of the Salmon River with approximately 80 percent of foliage destroyed. EUROPEAN EARWIG (*Forficula auricularia*) infestations were moderately heavy throughout most of State and caused considerable annoyance. CLOVER MITE (*Bryobia praetiosa*) was abundant statewide in lawns and flower gardens with damage often evident. Defoliation by A LARCH BUDMOTH (*Zeiraphera griseana*) continued to increase from 33,000 acres in 1955 to an estimated 250,000 acres in scattered centers during

1957 throughout northern Idaho and Montana. LARCH CASEBEARER (*Coleophora laricella*) was recorded in the northern part of the State for the first time during 1957. Infestations of approximately 15,000 acres observed in young larch stands near St. Maries where feeding produced severe defoliation. LARCH LOOPER (*Semiothisa sexmaculata*) was found in all examined larch stands but damage was low. A GALL MIDGE (*Dasyneura gleditschiae*) retarded growth in some young honey locusts in the Boise Valley. A MOURNING-CLOAK BUTTERFLY (*Nymphalis antiopa*) outbreak occurred in the Lewiston area on maples and control measures were necessary. MOUNTAIN PINE BEETLE (*Dendroctonus monticolae*) infestations in lodgepole pine timber appeared to be at a low level during 1957. One long-time infestation on privately owned land near Soldier's Reservoir south of Lewiston was still highly epidemic and the beetle was active to a limited extent in white pine stands in the Clearwater National Forest. OYSTERSHELL SCALE (*Lepidosaphes ulmi*) occurred spottedly. PINE BUTTERFLY (*Neophasia menapia*) in large numbers in portions of Nez Perce National Forest lightly damaged ponderosa pine. Adults were also observed in large numbers in various localities within western white pine forests. PINE NEEDLE SCALE (*Phenacaspis pinifoliae*) occurred in spotted infestations. POPLAR BORER (*Saperda calcarata*) infestations on poplars were heavy in the Challis area with considerable damage. POPLAR AND WILLOW BORER (*Sternochetus lapathi*) was found abundantly attacking willows in an area from Moscow east to Elk River during May. ROSE APHID (*Macrosiphum rosae*) was more abundant than normal during 1957. SAGEBRUSH DEF. (*Aroga websteri*) was severe on sagebrush over an area of 1,000 acres northwest of Minidoka. SPRUCE BUDWORM (*Choristoneura fumiferana*) infestations continued to enlarge in distribution and severity during 1957. Ground and aerial surveys revealed approximately 512,300 acres of infestation in the Boise, Challis, Payette, Sawtooth, and Salmon National Forests. A few areas of re-infestation were noted in previously sprayed areas consisting of 16,000 acres in the Boise and 84,000 acres in the Salmon National Forests. Aerial and ground surveys also revealed approximately 200,000 acres of Douglas-fir still infested in the Craig Mountain area of northern Idaho. This latter total of uncontrolled infested acreage represents an increase of about 10,000 acres during 1957. SPRUCE MITE (*Oligonychus ununguis*) appeared in southern Idaho in fir stands sprayed during 1956 to control budworm. Lesser infestations noted outside spray areas but heavy populations and damage coincided with previously sprayed areas. Approximately 22,300 acres were damaged through foliage discoloration.

Insects Affecting Man and Animals: CATTLE GRUBS (*Hypoderma bovis* and *H. lineatum*) were near normal. Many reports of CATTLE LICE throughout southern and northern Idaho were received and with many unsprayed herds heavily infested during late fall and early winter. DEER FLIES were moderately abundant and a considerable nuisance in northern Latah County. Few reports of HOG LICE (principally *Haematopinus suis*) were received. HORN FLY (*Siphona irritans*) caused approximately average annoyance to livestock. MOSQUITOES were above normal during 1957 partly as a result of cool, moist, extended spring weather. They were of considerable nuisance to man and animals in northern areas.

Stored-Product Insects: Extensive surveys in mills, feed stores, etc. failed to disclose the presence of KHAPRA BEETLE (*Trogoderma granarium*) in the State. Except for one moderate infestation in a feed and seed mill in Twin Falls no other reports of LESSER GRAIN BORER (*Rhyzopertha dominica*) were received. SAW-TOOTHED GRAIN BEETLE (*Oryzaephilus surinamensis*) was common and occasionally abundant particularly in northern Idaho and especially in grain in storage from current harvest. A GRAIN MOTH (*Haplotinea ditella*) was discovered in a grain shipment from Arimo, Idaho, to California in 1956. Surveys in 1957 at the point of shipment disclosed a small infestation of this insect. This was the first recorded establishment of this pest in the United States. Heavy infestations of an APHID (*Anuraphis tulipae*) in gladiola bulbs in storage at Parma.

Household Pests: One heavy infestation of AMERICAN COCKROACH (*Periplaneta americana*) in a dwelling at Mountain Home. ANTS were particularly abundant in and around dwellings. GIANT CARPENTER ANT (*Camponotus levigatus*) was exceedingly abundant in and around dwellings in northern Idaho. BOXELDER BUGS (*Leptocoris trivitattus*) caused annoyance to householders statewide. Numerous reports of CARPET BEETLE (*Attagenus* spp.) damage. SUBTERRANEAN TERMITES were reported infesting homes at Idaho Falls, Caldwell and Parma.

Beneficial Insects: LADY BEETLES were abundant on may crops in the Clearwater River Valley and the Moscow area throughout the summer. By late June they were becoming abundant in much of southern Idaho. OTHER PREDATORS were at or above normal numbers during 1957. In one localized area near Lewiston mature larvae of KLAMATHWEED ROOT BORER were common in Klamathweed roots by mid-April and were causing some plant mortality. A KLAMATHWEED BEETLE (*Chrysolina gemellata*) continued to severely reduce Klamathweed starts in the Clearwater and Salmon River areas during 1957. PREDACIOUS MITES (*Typhlodromus* spp.) were relatively abundant in many legume areas where two-spotted mite populations were high. A MINUTE PIRATE BUG (*Orius tristicolor*) ranged from 2 to 20 per sweep in alfalfa and red clover seed fields in southern Idaho by late August.

INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

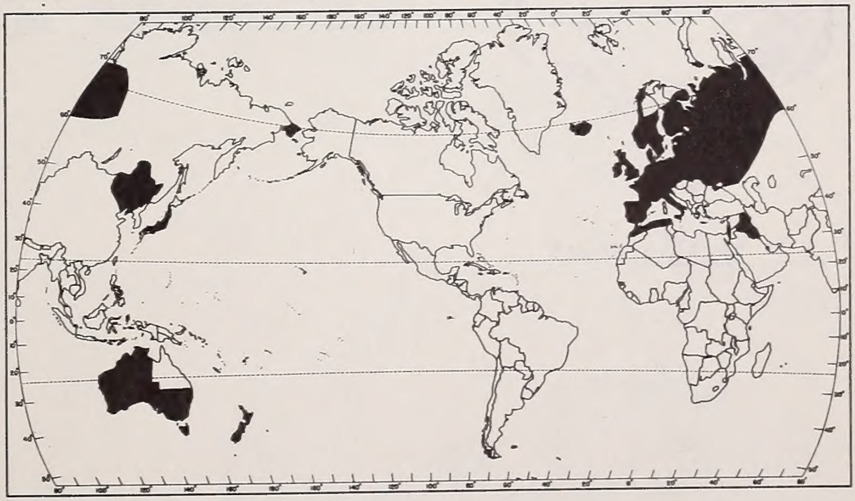
LUCERNE-FLEA* (Sminthurus viridis Lubbock)

Economic Importance: This springtail is a serious pest of pasture and field crops, particularly legumes. It is considered to be the most troublesome pest of clover and alfalfa in the wetter parts of South Australia, and has been recorded as damaging on occasions in Europe. It is active only during the wet season, the length of the period varying according to the district or type of season. There are usually two peak populations during a season, one during the fall and one in the spring. Populations of as many as 1,298 per square foot have been recorded in New Zealand. During May of 1937 in that country, it was determined that 38 percent of the weight loss of subterranean clover was attributed to lucerne-flea in a section of North Island.

Distribution: Most of Europe, including the British Isles, and the northern coast of Africa. Also recorded from Israel, Iceland, Iraq, Japan, China, New Zealand and Australia (except Queensland).

Hosts: A pest of many plants, but prefers legumes such as clover, alfalfa and peas. Truck crops such as lettuce, turnips and carrots are attacked, especially in seedling stage. Young barley, oats and wheat are sometimes damaged on heavy soils.

Damage to Clover



General Distribution of Lucerne-flea

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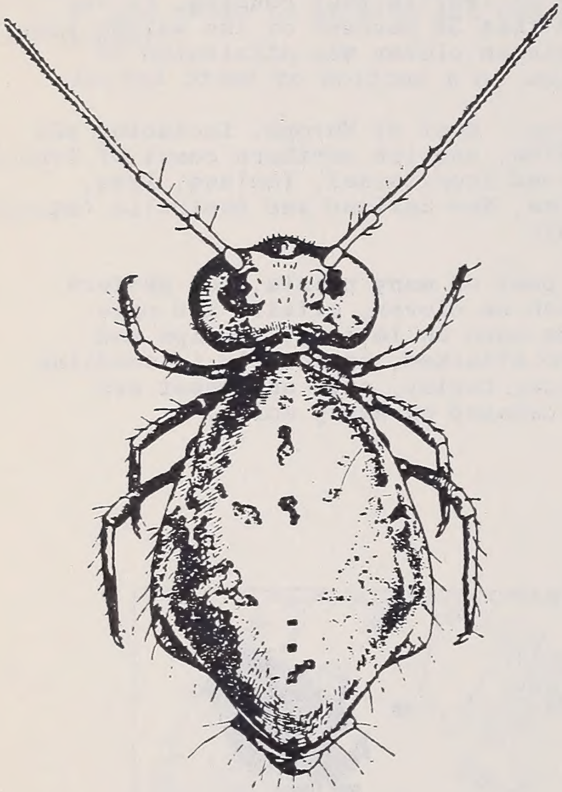
*Sminthuridae, Collembola

Life History and Habits: The eggs are laid on the soil, usually in little batches or heaps of 50 or 60. They are covered with a fluid which upon drying, renders the eggs very difficult to find. Under favorable conditions, eggs hatch in 3 to 4 days in Western Australia. Incubation of the eggs is governed principally by soil moisture. Nymphal development normally takes place in about a month, but varies greatly with weather conditions. The mean monthly temperatures ranging between 52°F. and 60°F. accompanied by adequate soil moisture, offer optimum conditions for population growth in New Zealand. In unfavorable conditions, the insect survives in the egg stage. In Scotland, the unfavorable period is winter, when development is inhibited by low temperature, while in South and Western Australia, the unfavorable conditions are in the summer when development is inhibited by low relative humidity. Feeding injury is quite characteristic; small irregular portions of leaf may be eaten away, leaving a ragged hole, or lower surface of leaf may be left intact as a whitish film. The adult jumps rapidly when disturbed, moving distances of up to 12 inches at a time.

Description: The eggs are yellowish and cylindrical, measuring approximately .25 mm. Newly emerged nymphs are less than 1 mm. in length and yellow in color. As growth progresses, a greenish tinge appears. The adult is about 2.5 mm. in length; body soft and somewhat globular; general color greenish or greenish-yellow with irregular darker patches on the abdomen. It is wingless in all stages and young nymphs resemble the adults except in size.

(Prepared in Plant Pest Survey Section in cooperation with other ARS agencies.) CEIR 8(13) 3-28-58

Figures (except map): S. viridis adult from Jenkins, C. F. H. and Forte, P. N. 1948. Jour. Agr. West. Austral. 25(2):116-120. Damage from Dumbleton, L. J. 1938. New Zealand Jour. Sci. and Tech. 20(4A):197A-211A.



Sminthurus viridis Adult